

ORNITHOLOGICAL LITERATURE

NATURAL COMMUNITIES. By Lee R. Dice. University of Michigan Press, Ann Arbor, 1952:6½×10 in., xii+547 pp., 52 figs. \$5.50.

Ecology has been defined as the science of communities and Dice's new book on natural communities does indeed cover the field of ecology. The author may be credited with rendering a great service. The book is eminently suitable as a text for an ecology class of university level, filling a need that has long existed, and it is an indispensable reference for anyone interested in ecology. The 23 chapters include: community ecology; some important kinds of communities; methods of describing and measuring communities; methods for the estimation of populations; physical factors of habitats that affect communities; effects on communities of fluctuations in the physical conditions of their habitats; food relations within communities; fluctuations in populations; fluctuations in community composition; relations of organisms to their ecosystems; home ranges and territories; effects of social behavior on the community; ecologic relations between species; community equilibrium; effects of communities on their physical habitats; ecologic succession; local and geographic variation within communities; relations between communities; classification of associations and microassociations; larger units of community classification; communities of the past; evolution of communities; philosophy of communities.

An impressive amount of material has been digested, organized and concisely set forth in thoroughly readable and understandable language. Unlike some of his fore-runners and contemporaries, the author does not find it necessary to coin new terms in profusion, nor does he use many of the technical ecological terms that have been proposed by previous authors. He has the faculty of presenting ecological concepts simply and clearly in everyday language that should be understandable to the average biology student. Those technical terms that are unavoidable are defined and illustrated with appropriate examples.

Various terms are used with meanings or connotations slightly different from those that have been customarily associated with them in earlier works. One term which is used frequently throughout the book is the "stand." In the past, as the author states, this term has been applied mostly to examples of various kinds of forests, but he uses it here in a broader sense. "A stand may be defined as a local example of an association composed of those individual plants and animals that live together in a particular situation (Braun-Blanquet, Fuller, and Conard, 1932:23)." "Each stand is an actual concrete community which exists at a given time and covers a particular area." It is stated to be the most important unit of ecologic classification, but applies "only to a community of considerable importance that covers an appreciable area. A grove of trees together with its associated plants and animals, for example, is a stand. On the contrary, a single tree or clump of plants is not usually called a stand. A "microstand" is defined as a minor concrete community, such as the assemblage of plants and animals that live in and upon a decaying log. On page 392, in discussing mixed stands, the author mentions both Douglas spruce and Douglas fir. It will not be apparent to readers unfamiliar with the species that these are one and the same.

Symbiosis, used in an especially broad sense, is defined as the living together of individual organisms of dissimilar species. "Most of the plants and animals of a given stand, for example, live in disjunctive symbiosis with one another." Two main types of symbiosis are: conjunctive, involving close bodily contact between the two symbiotic

organisms; and disjunctive, in which the associated organisms are free-living. The term includes both parasitism and mutually beneficial symbiosis. The term commensalism is not mentioned in this discussion of symbiosis, although the word commensal does appear just once, on the final page (320) of this chapter, "Ecologic Relations between Species."

In Chapter 20, "Larger Units of Community Classification," four separate systems are each briefly discussed: (1) Community Type, (2) Life Zone, (3) Biome, and (4) Biotic Province. Quite understandably the author devotes more space to the system of biotic provinces, developed by himself, than to the other three combined. Even so, the treatment is cursory and nothing new is added to the material already presented in the author's "The Biotic Provinces of North America" published in 1943. It seems regrettable that the biotic provinces, potentially useful in study of animal distribution and ecology, have not been further described or classified in the last ten years as the original attempt was admittedly a tentative outline based on incomplete information. Throughout the present book the author refers to geographic areas by the names of their respective biotic provinces, the Hudsonian, Californian, Chihuahuan, etc. A map of the 28 biotic provinces of North America is reproduced from the author's earlier book on this subject. On page 447 it is stated: "The Chihuahuan biotic province in southeastern Arizona, for example, is divided into the Santa Catalina, Chiricahua, Huachuca, and Santa Rita biotic districts (Dice and Blossom, 1937)." However, this statement is not in agreement with the map on page 444 which shows the Chihuahuan entering the United States only in western Texas and southern New Mexico, with its western boundary considerably to the east of the Arizona border; the area in question would fall entirely within the Apachian biotic province.

In comparing the usefulness of the several systems Dice states, "Biomes and biotic provinces are not necessarily to be considered as mutually exclusive and competing systems of ecologic classification, but rather as more or less supplementary to each other." However, he regards life zones as of little value for the classification of communities, and states that the community-type system is of value for description only, not classification.

In the preface, the author states that no attempt is made to supply a complete bibliography of community ecology and this statement is reiterated at the beginning of the "Literature Cited" section. Nevertheless, more than 1100 titles are included, and they cover the field thoroughly. The latest publications included are those of 1949. Relatively recent publications, of the past ten years, make up a substantial proportion of the total, reflecting the rapid recent progress in development of ecology. A small proportion of important early works, from the nineteenth century and the early part of the present century, are also included. The works of British and European authors are prominent in the bibliography. Especially noteworthy is the inclusion of a large number of titles by Russian authors, and the content of these papers is often mentioned in the text, providing insight as to the extent and trends of ecological research in Russia.

Of the more than 1100 papers cited, over 200 are concerned primarily with birds, and a somewhat larger number deal primarily with mammals. Although the author has been mainly concerned with mammals and birds in his earlier publications he is not preoccupied with these groups to the extent of neglecting smaller and less conspicuous animals that may be equally important elements of natural communities. Insects and other invertebrates figure prominently among the animals mentioned in discussing various phases of community ecology. Chapter 11 on "Home Ranges and Territories" may be of particular interest to the ornithologist, since much of it is concerned with birds, the most typically territorial animals. Representatives of many other groups are, however,

duly discussed in this connection. The distinction between territories, which are defended, and home ranges, which are not defended, is emphasized, and the many different types of territories are described and illustrated in an excellent short summary of this subject.

On the average there are several citations to the literature on each page of the text, but the author rarely uses direct quotations; he has extracted the essential material from pertinent literature and integrated it into the text in his own wording to attain greater continuity, smoothness, and clarity. At the end of each chapter is a short list of, usually, three to ten "selected references."

The illustrations are not numerous (52 in all). Figure 2, showing "A simple ecologic community composed of a single rabbit sitting under a single blackberry bush," perhaps might have been dispensed with. On the whole the illustrations are well chosen to emphasize or amplify with diagrammatic simplicity some of the more important concepts discussed in the text. Most of the illustrations are reproduced from other publications, but a number are from originals by C. W. Angell, including several pencil sketches of communities in the arid southwestern United States.—HENRY S. FITCH.

STALKING BIRDS WITH COLOR CAMERA. By Arthur A. Allen. Edited by Gilbert Grosvenor. National Geographic Society, Washington, D.C., 1951:7×10 in., 328 pp., 331 unnumbered, color photographs (264 by the author), 87 black and white photographs, 2 wash drawings (W. A. Weber), 3 maps. \$7.50.

This beautiful collection of very well reproduced color photographs will stand as an appropriate monument to Dr. Allen's eminence in the field of bird photography. There are today many fine bird photographers, a few of them perhaps as skilled as Dr. Allen, who, however, was taking excellent pictures of birds when most present competitors were in knee-breeches, and before some were born. The author and editor have not hesitated to draw upon the work of others to illustrate the various phases of ornithology and photography touched upon in this book, but the slight degree to which this has been necessary is evidence of Dr. Allen's breadth of experience and the extensiveness of his travels.

It is difficult to single out particular photographs from this impressive array. However, some seem to demand individual mention, among them the Golden-winged Warbler (p. 58), Indigo Bunting (p. 92), Tree Sparrow (p. 110), Marsh Hawk (p. 189), Western Gulls (p. 255), Bald Eagle (p. 180), Duck Hawk (p. 192), and Woodcock (p. 232). Without wishing to revive the senseless controversy of art versus photography, this reviewer thinks that the pictures cited strongly resemble fine paintings, embodying that combined perfection of composition, subjugation and elimination of detail, beauty of tone, and grace of pose which are the objectives of photographer and painter alike, and which are inevitably more difficult for photographer than for painter to arrange and control.

Most of the photographs and text chapters of this book have been published previously in the *National Geographic*. Otherwise the cost would have been prohibitive. The frequent sub-headings of the text and the captions of the many illustrations are couched in somewhat slangy language which may ruffle the feelings of a few scientific ornithologists. It must be borne in mind, however, that the *National Geographic Magazine* has remained successful for many years by the use of these methods, and that Dr. Allen, as well, has succeeded in this way in capturing the interest of thousands of people who are not, and will never be, ornithologists. Aimed at similar audiences, this effort should do equally well.

Being largely a gathering of independent articles, the chatty, readable text covers a diverse quantity of ornithological subjects, including bird photography, use of stroboscopic